CLAIMS

1. A method of operating a vacuum drying chamber having a vent valve, a non-return valve leading to a vacuum pump and a pressure control valve which communicates with the inlet to the pump, such that with the vent valve closed and the pressure control valve open, air at atmospheric pressure enters through the pressure control valve and the non-return valve is subjected to atmospheric pressure on the pump side and a "lower" at least partial vacuum pressure in the chamber on the other side, and the differential pressure keeps the non-return valve closed, thereby sealing the chamber from atmosphere while the open pressure control valve provides a ready supply of air at atmospheric pressure to the pump inlet which thus maintains a high flow rate therethrough, thereby to clear any solvent from the interior of the pump.

2. A method of controlling the pressure within a chamber of a drying apparatus from which air and vapour is removed by a pump which is operated continuously during the drying process, wherein both of a vent valve and a pressure control valve are opened so that air at atmospheric pressure is drawn by the pump directly from the pressure control valve, and via the chamber and a non-return valve from the vent valve, and when the pressure in the chamber is to be reduced both vent and pressure control valves are closed to allow the pump to remove air, gas and vapour from the chamber via the non-return valve, and wherein the dropping chamber pressure is monitored by a pressure transducer and after a required chamber pressure has been reached, the pressure control valve is opened while the vent valve remains closed, whereby a high rate of airflow is maintained through the pump to clear the interior of the pump of any residual solvent.

3. A method as claimed in claim 1 or 2 wherein the chamber pressure is maintained substantially constant and is varied by adjusting the amount by which the control valve is opened.

4. Vacuum drying apparatus comprising a drying chamber, control means for controlling the pressure within the chamber, a pump adapted to remove air gas and vapour from the chamber and which is operated continuously during the drying process, a vent valve which when open admits air to the chamber, a pressure control valve which when open admits air directly to the pump inlet, a non-return valve between the chamber and the pump inlet, and control means adapted to close both vent and pressure control valves when the pressure in the chamber is to be reduced by the removal of air, gas and vapour from the chamber by the pump through the non-return valve, the control means being adapted to at least partly open the pressure control valve while keeping the vent valve closed when a given partial vacuum pressure is achieved in the chamber, whereby a high rate of air flow is maintained through the pump to clear the interior of the pump of solvent, while the chamber pressure remains substantially constant.

5. Apparatus as claimed in claim 4 further comprising a pressure transducer means adapted to monitor the chamber pressure and to provide a signal to the control means.

6. Apparatus as claimed in claim 5 wherein the transducer signal is proportional to the chamber pressure and the control means compares the chamber pressure signal value with a programmed pressure value corresponding to the given chamber pressure to generate a signal to open the control valve when the given pressure is reached.

7. Apparatus as claimed in claim 5 wherein the transducer means includes programmable means by which a given pressure can be entered and the transducer delivers a signal to the control means when the given pressure is detected in the chamber, to open the control valve.

8. Apparatus as claimed in any of claims 4 to 7 wherein the non-return valve is a flap valve.

9. A method and apparatus as herein described with reference to and as illustrated in Fig 3 of the accompanying drawings.